

Appl. No. 10/808,168

Reply to Examiner's Action dated January 5, 2006

REMARKS/ARGUMENTS

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the following remarks.

The Applicants originally submitted Claims 1-23 in the application. Previously, the Applicants withdrew Claims 11-13 in response to an Election Requirement. Presently, the Applicants have not amended, canceled nor added any claims. Accordingly, Claims 1-10 and 14-23 are currently pending in the application.

I. Rejection of Claims 1, 2, 14 and 15 under 35 U.S.C. ' 102

The Examiner has rejected Claims 1, 2, 14 and 15 under 35 U.S.C. ' 102(b) as being anticipated by U.S. Patent No 6,326,291 to Yu ("Yu"). Independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. Yu fails to disclose this element.

Yu is directed to the fabrication of wide metal silicided on a narrow polysilicon gate structure. (Title). Yu teaches, with respect to Figs. 5-9, that silicided source/drain regions 220, 222 are formed before the silicided polysilicon gate electrode 240. Yu also requires, according to its own independent Claim 1; that a first silicidation anneal is conducted to form drain and source silicides, and that a second silicidation anneal is conducted to form a gate silicide. Given the order denoted by the terms "first" and "second" in independent Claim 1 of Yu, Claim 1 also requires that the drain and source silicides are formed before the gate silicide. Moreover, Claim 1 requires that the polysilicon

Appl. No. 10/808,168

Reply to Examiner's Action dated January 5, 2006

gate electrode have a capping layer thereover to prevent the first silicidation anneal from forming a silicided on the polysilicon gate electrode, and that the capping layer is removed to expose the polysilicon gate electrode before performing the second silicidation anneal. Thus again, Claim 1 implicitly denotes that the drain and source silicides are formed before the gate silicided. Accordingly, Yu fails to teach the aforementioned element of siliciding the source/drain regions after siliciding the polysilicon gate electrode.

The Examiner in the most recent Examiner's Action appears to attempt to argue that independent Claim 1 of Yu requires no order to the formation of the source and drain silicides as compared to the gate silicide. The Applicants respectfully disagree for the foregoing reasons. However, assuming for the sake of argument that the Examiner is correct, and again he is not, if independent Claim 1 discloses no order, it can not, as a matter of fact, disclose siliciding the source/drain regions after siliciding the polysilicon gate electrode, as is required by the independent Claims. Accordingly, even assuming the Examiner is correct, Yu still fails to disclose the presently claimed element of siliciding the source/drain regions after siliciding the polysilicon gate electrode.

Therefore, Yu does not disclose each and every element of the claimed invention and as such, is not an anticipating reference. Because Claims 2 and 15 are dependent upon Claims 1 and 14, Yu also cannot be an anticipating reference for Claims 2 and 15. Accordingly, the Applicants respectfully request the Examiner to withdraw the ' 102 rejection with respect to these Claims.

Appl. No. 10/808,168

Reply to Examiner's Action dated January 5, 2006

II. Rejection of Claims 3, 4, 5, 16, 17 and 18 under 35 U.S.C. ' 103

The Examiner has rejected Claims 3, 4, 5, 16, 17 and 18 under 35 U.S.C. ' 103(a) as being unpatentable over Yu in view of U.S. Patent No. 6,794,313 to Chang ("Chang"). As previously indicated, independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. As previously established, Yu fails to disclose such an element. Yu further fails to suggest such an element. Yu fails to suggest such an element because Yu requires that a very detailed and long process be used to manufacture its semiconductor device, the detailed and long process requiring that the silicided source/drain regions 220, 222 be formed prior to the silicided polysilicon gate electrode 240.

Chang fails to correct the deficiencies in Yu. The Examiner is offering Chang for the sole proposition that a silicided blocking layer may be grown using a dry oxidation process, low temperature radical oxidation or plasma oxidation process, as well as the thickness of the blocking layers. Without even addressing the accuracy of this assertion, a teaching that a silicided blocking layer may be grown using a dry oxidation process, low temperature radical oxidation or plasma oxidation process, as well as the thickness of the blocking layers, is very different from a teaching or suggestion of siliciding source/drain regions after siliciding the polysilicon gate electrode, as is claimed. Accordingly, Chang also fails to teach or suggest this claimed element.

Thus, Yu, individually or in combination with Chang, fails to teach or suggest the invention recited in independent Claims 1 and 14 and their dependent claims, when considered as a whole. The combination, accordingly, also fails to establish a prima facie case of obviousness with respect to these claims. Claims 3, 4, 5, 16, 17 and 18 are therefore not obvious in view of Yu and Chang.

Appl. No. 10/808,168
Reply to Examiner's Action dated January 5, 2006

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 3, 4, 5, 16, 17 and 18 under 35 U.S.C. ' 103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

III. Rejection of Claims 6 and 19 under 35 U.S.C. ' 103

The Examiner has rejected Claims 6 and 19 under 35 U.S.C. ' 103(a) as being unpatentable over Yu in view of U.S. Patent App. No. 2005/0179098 to Chan, *et al.* ("Chan"). As previously indicated, independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. As previously established, Yu fails to teach or suggest this element.

Chan fails to correct the deficiencies in Yu. The Examiner is offering Chan for the sole proposition that a hardmask layer comprising siliconoxynitride may be used as a protective layer. Without even addressing the accuracy of this assertion, a teaching that a hardmask layer comprising siliconoxynitride may be used as a protective layer, is very different from a teaching or suggestion of siliciding source/drain regions after siliciding the polysilicon gate electrode, as is claimed. Accordingly, Chan also fails to teach or suggest this claimed element.

Thus, Yu, individually or in combination with Chan, fails to teach or suggest the invention recited in independent Claims 1 and 14 and their dependent claims, when considered as a whole. The combination, accordingly, also fails to establish a *prima facie* case of obviousness with respect to these claims. Claims 6 and 19 are therefore not obvious in view of Yu and Chan.

Appl. No. 10/808,158

Reply to Examiner's Action dated January 5, 2006

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 6 and 19 under 35 U.S.C. ' 103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

IV. Rejection of Claims 7, 8, 20 and 21 under 35 U.S.C. ' 103

The Examiner has rejected Claims 7, 8, 20 and 21 under 35 U.S.C. ' 103(a) as being unpatentable over Yu in view Chan, and further in view of U.S. Patent App. No. 2001/0034129 to Moore, *et al.* ("Moore"). As previously indicated, independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. As previously established, Yu and Chan, alone or in combination, fail to teach or suggest this element.

Moore fails to correct the deficiencies of Yu and/or Chan. The Examiner is offering Moore for the sole proposition that the sidewall spacer may comprise a nitride, the different nitride composition of the spacer and the protective layer, and the nitride carbon content of 5-10%. Without even addressing the accuracy of this assertion, a teaching that the sidewall spacer may comprise a nitride, the different nitride composition of the spacer and the protective layer, and the nitride carbon content of 5-10%, is very different from a teaching or suggestion of siliciding source/drain regions after siliciding the polysilicon gate electrode, as is claimed. Accordingly, Moore also fails to teach or suggest this claimed element.

Appl. No. 10/808,168
Reply to Examiner's Action dated January 5, 2006

Thus, Yu, individually or in combination with Chan and Moore, fails to teach or suggest the invention recited in independent Claims 1 and 14 and their dependent claims, when considered as a whole. The combination, accordingly, also fails to establish a prima facie case of obviousness with respect to these claims. Claims 7, 8, 20 and 21 are therefore not obvious in view of Yu, Chan and Moore.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 7, 8, 20 and 21 under 35 U.S.C. ' 103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

V. Rejection of Claims 9 and 22 under 35 U.S.C. ' 103

The Examiner has rejected Claims 9 and 22 under 35 U.S.C. ' 103(a) as being unpatentable over Yu. As previously indicated, independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. As previously established, Yu fails to teach or suggest this element. Because Yu fails to teach or suggest an element of independent Claims 1 and 14, Yu must also fail to teach or suggest an element of dependent Claims 9 and 22. Claims 9 and 22 are therefore not obvious in view of Yu and Chan.

In view of the foregoing remarks, the cited reference does not support the Examiner's rejection of Claims 9 and 22 under 35 U.S.C. ' 103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

Appl. No. 10/808,168

Reply to Examiner's Action dated January 5, 2006

VI. Rejection of Claims 10 and 23 under 35 U.S.C. ' 103

The Examiner has rejected Claims 10 and 23 under 35 U.S.C. ' 103(a) as being unpatentable over Yu in view of Chan. As previously indicated, independent Claims 1 and 14 include the element, among others, of siliciding source/drain regions after siliciding the polysilicon gate electrode. As previously established, Yu and Chan, whether alone or in combination, fail to teach or suggest this element. Claims 10 and 23 are therefore not obvious in view of Yu and Chan.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 10 and 23 under 35 U.S.C. ' 103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

Appl. No. 10/808,168

Reply to Examiner's Action dated January 5, 2006

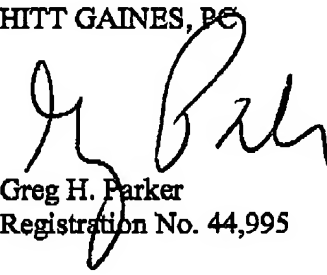
VII. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-10 and 14-23.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 20-0668.

Respectfully submitted,

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